

What is claimed is:

1 1. A quick change cutting link of saw chain for cutting wood,
2 comprising

3 a base member adapted to be pivotally connected to other links of the
4 saw chain, said base member comprising a seat surface having a first taper;
5 and

6 a cutting member that comprises a cutting edge and releasably
7 engages said base member, said cutting member including a surface having
8 a second taper, wherein said first taper and said second taper extend at an
9 angle ranging from about 0.5° to about 45° relative to a direction of chain
10 travel at a close tolerance effective to cause self-locking engagement of said
11 first taper of said seat surface and said second taper of said cutting member
12 surface.

2. The quick change cutting link of claim 1 wherein said close tolerance is characterized by variation in said angle being not more than about 1°.

3. The quick change cutting link of claim 1 wherein said close tolerance is characterized by variation in said angle being not more than 0.5 °.

4. The quick change cutting link of claim 1 wherein said cutting member comprises sintered and compacted particles of abrasion resistant material.

5. The quick change cutting link of claim 4 wherein said base member comprises stamped metal.

6. The quick change cutting link of claim 1 wherein said base member comprises sintered and compacted particles of abrasion resistant material.

7. The quick change cutting link of claim 4 wherein said abrasion resistant material comprises at least one of metal and ceramic.

8. The quick change cutting link of claim 7 wherein said abrasion resistant material comprises a carbide containing compound.

9. The quick change cutting link of claim 8 wherein said carbide containing compound comprises a compound selected from the group consisting of tungsten carbide, silicon carbide, tantalum carbide and aluminum carbide.

10. The quick change cutting link of claim 4 wherein said abrasion resistant material comprises a tool steel alloy.

11. The quick change cutting link of claim 1 wherein one of said seat surface and said cutting member includes an inverted-L shaped protrusion and the other of said seat surface and said cutting member includes an inverted-L shaped recess for receiving said inverted-L shaped protrusion, and wherein one of said first taper and said second taper forms a surface of said L-shaped protrusion.

12. The quick change cutting link of claim 1 wherein at least one of said cutting member and said base member comprises a water-resistant material applied by a process selected from the group consisting of steam treatment, resin infiltration, copper infiltration and loctite infiltration.

13. A saw chain comprising a plurality of the quick change cutting links of claim 1.

14. The saw chain of claim 13 wherein said saw chain is adapted for use on a saw comprising a chain saw, a timber harvester, a buck saw and a

saw for cutting wood pallets.

1 15. A quick change cutting link of saw chain for cutting wood,
2 comprising

3 a base member adapted to be pivotally connected to other links of the
4 saw chain, said base member comprising a seat surface; and

5 a cutting member that comprises a cutting edge and releasably
6 engages said seat surface of said base member, wherein said cutting
7 member consists essentially of sintered and compacted particles of abrasion
8 resistant material.

1 16. A quick change cutting member of saw chain for cutting wood,
2 comprising a cutting edge and a surface having a taper extending at an angle
3 ranging from about 0.5° to about 45° relative to a direction of travel of said
4 cutting member when fastened on a chain, said taper having a close
5 tolerance characterized by variation in said angle being not more than 0.5°,
6 wherein said cutting member consists essentially of sintered and compacted
7 particles of abrasion resistant material.

17. The quick change cutting member of claim 16 comprising one of
an inverted-L shaped protrusion and an inverted-L shaped recess.

1 18. A base member of a cutting link of saw chain for cutting wood,
2 said base member being adapted to be pivotally connected to other links of
3 the saw chain, said base member comprising a seat surface having a taper
4 extending at an angle ranging from about 0.5° to about 45° relative to a
5 direction of travel of the base member when fastened on the chain, said taper
6 having a close tolerance characterized by variation in said angle being not
7 more than 0.5°, wherein said base member consists essentially of sintered
8 and compacted particles of abrasion resistant material.

1 19. A quick change cutting link of saw chain for cutting wood,
2 comprising

3 a base member adapted to be pivotally connected to other links of the
4 saw chain, said base member comprising a seat surface having a first taper
5 and a stop surface located upstream of said seat surface relative to the
6 direction of travel of the chain; and

7 a cutting member that comprises a cutting edge and releasably
8 engages said seat surface of said base member, said cutting member
9 including a second taper, wherein said first taper and said second taper
10 extend at an angle ranging from about 0.5° to about 45° relative to a direction
11 of chain travel at a close tolerance effective to cause locking engagement of
12 said first taper of said seat surface and said second taper of said cutting
13 member surface, and said cutting member comprises sintered and
14 compacted particles of abrasion resistant material.

20. The quick change cutting link of claim 19 wherein said close tolerance is characterized by variation in said angle being not more than 0.5 °.

21. The quick change cutting link of claim 19 wherein one of said seat surface and said cutting member has an inverted-L shaped protrusion and the other of said seat surface and said cutting member has an inverted-L shaped recess for receiving said inverted-L shaped protrusion.

22. The quick change cutting link of claim 21 wherein one of said first taper and said second taper forms a surface of said L-shaped protrusion.

23. The quick change cutting link of claim 19 wherein said first taper and said second taper extend upwardly or downwardly from a location near said cutting edge in a direction opposite to said direction of chain travel.

24. The quick change cutting link of claim 19 wherein said angle is about 10 degrees or less.

1 25. The quick change cutting link of claim 19 wherein said cutting
2 member includes a leading surface relative to said direction of chain travel
3 which forms said cutting edge at an upper location of said leading surface,
4 said leading surface having a radius of curvature for a given chain pitch that is
5 proportional to a radius of about 0.25 inch for a chain pitch of .750 inch.

26. The quick change cutting link of claim 25 wherein said curvature is concave from a point of reference external to said cutting member.